## Abstract

A method of *in vitro* fucosylation of selectin ligands on cord blood-derived hematopoietic stem cells for bone marrow transplantation is disclosed. In this method, an effective amount of an α1,3-fucosyltransferase, e.g., α1,3-fucosyltransferase VI, is used *in vitro* to treat cord blood-derived hematopoietic stem cells to convert non-functional PSGL-1 or other ligands on the cell surface into functional forms that bind selectins, especially P-selectin or E-selectin. The treated cells have enhanced effectiveness in reconstituting bone marrow in patients in need of such therapy.